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ABSTRACT

The study focused on the income in agricultural jobs, in nonagricultural jobs, and in total for Puerto Rican, white, and black farm workers who worked at least parttime in New Jersey. Objectives were to examine income differences between and within the three groups, and to pinpoint some of the socioeconomic characteristics that are important in predicting incomes of various groups. Data were obtained from 986 questionnaires of which 559 were from Puerto Ricans, 227 from whites, and 200 from blacks. Among the factors analyzed were: age, sex, salary, education, years worked for employer, weeks worked in agriculture, whether unemployment insurance was received, relation to present employer, years worked for wages, and families visited regularly. Findings included: the actual number of weeks worked was the major variable in all total income equations; there was a statistical difference in the salaries between white farm laborers and those of blacks and Puerto Ricans; whites made larger yearly salaries in agricultural jobs while blacks and Puerto Ricans made larger yearly salaries in nonagricultural jobs; and age, years worked for present employer, and whether or not unemployment insurance was ever received were the next most important variables in explaining both agricultural and nonagricultural income. (NQ)

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Income Characteristics of Farm Laborers by Ethnic Groups in New Jersey

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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PREFACE

This is the third in a series of publications on the New Jersey farm labor force. The first publication, "An Analysis of the Variables Related to the Extension of Unemployment Insurance to Farm Workers in New Jersey," was concerned with the impact of an unemployment insurance program on the New Jersey U.I. Fund, the benefits to farm workers, and the costs to farm employers. The second publication, "Critical Issues in Extending Unemployment Insurance to Farm Workers in New Jersey," was a description of the demographic characteristics of the New Jersey farm labor force with major emphasis on the Puerto Rican worker.

This publication focuses on the incomes of farm workers in New Jersey. Incomes are examined in agricultural jobs, in nonagricultural jobs, and in total for the ethnic groups of Puerto Ricans, whites and blacks. Analysis centers on the socio-economic characteristics that are important in predicting income for the various ethnic groups.

ACKNOWLEDGEMENTS

This report uses the data that were collected under the Northeast regional study, NE-58, which was funded jointly by the United States Department of Labor, the United States Department of Agriculture, and other State and Federal agencies, to examine the feasibility of extending unemployment insurance coverage to farm workers.

A special debt is acknowledged to Dr. George W. Luke without whose generosity in terms of data, knowledge of farm labor in New Jersey, and comments and criticisms this report would not be possible.

Thanks are also extended to Dr. James W. Longest, Maryland, Dr. A. Robert Koch and Frederick A. Perkins, New Jersey, all who made valuable comments at various stages of the report.

Finally, acknowledgement is extended to John W. Carncross, his field staff, and the more than 1,000 farm workers who cooperated in the initial worker's survey.

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Income Characteristics of Farm Laborers by Ethnic Groups in New Jersey

by

Daymon W. Thatch[1/]

Introduction

Seasonal farm workers are essential for continuing the present level of fruit and vegetable production in New Jersey. During the height of the tomato and blueberry harvesting, over 19,000 seasonal farm workers were employed. The size of this seasonal force contrasts dramatically with the 3,200 year-round farm workers employed. 2/ The majority of seasonal farm workers are not permanent residents of New Jersey. In 1970, for example, 60 percent of the seasonal farm-working force was from out-of-state. 3/ Under the assumption that ceteris paribus, the higher the seasonal farm worker's income the more likely it is he will return to farm work, this study was initiated. 4/

Although hourly wages have more than doubled, the overall number of farm workers in New Jersey has decreased by more than half since 1950. New Jersey agriculture is still very dependent upon a steady supply of seasonal labor. 5/ So critical is the need for seasonal farm workers that in a recent discussion with New Jersey's Governor, the president of the New Jersey Farm Bureau, Arthur H. West, stated, ". . . if farmers cannot be assured of being able to have an adequate supply of farm labor (and a number of other items), that agriculture was not interested in continuing in this state." 6/

1/ Associate Professor, Department of Agricultural Economics and Marketing, Rutgers University, New Brunswick, New Jersey.

2/ Rural Manpower Annual Report, 1972, New Jersey State Training and Employment Service, Bureau of Rural Manpower Services, Labor and Industry Building, John Fitch Plaza, Trenton, New Jersey, 1972, p. 4.

3/ Ibid., p. 6.

4/ This assumption seems fairly reasonable in lieu of the findings of the National Advisory Commission on Food and Fiber for the Future, 1967 . . . "a prime difficulty in recruiting and keeping farm labor is low wages."

5/ Luke, George W. and John W. Carncross, An Analysis of the Variables Related to the Extension of Unemployment Insurance to Farm Workers in New Jersey, Bulletin 827, N.J. Agricultural Experiment Station, Rutgers University - The State University of New Jersey, New Brunswick, N.J., pp. 2, 206 and 212.

6/ This week in Farm Bureau, New Jersey Farm Bureau Report to Members - Week ending June 1, 1974, Vol. XII, No. 23, Trenton, New Jersey.

In recent farm labor studies it has been shown that workers who do both farm and non-farm labor receive higher yearly incomes than those who do only farm labor. 7/ In New Jersey, for example, in a farm labor force that is 52 percent Puerto Rican, 23 percent white, and 24 percent black, the average earnings for all workers in farm and non-farm employment was $2,922. A larger percentage of those workers who earned less than $2,000 per year had no non-farm employment. 8/

It has been well documented that median black income in the United States is considerably less than median white income. 9/ Luke and others 10/ have shown income comparisons among Puerto Ricans for farm and non-farm work in New Jersey and other states. However, less information is available on income variations between white and black farm laborers, or between ethnic groups in terms of farm and non-farm income.

Two specific objectives are addressed in this study. First, to examine the income differences between ethnic farm labor groups in New Jersey for both agricultural (farm) and nonagricultural (nonfarm) incomes; and second, to examine (by ethnic group) selected socio-economic factors that are important in predicting incomes for New Jersey farm laborers in agricultural, nonagricultural, and total income categories.

Background and Methodology

There seems to be no shortage of hypotheses as to why income variations exist for different groups in society generally and in agriculture particularly. Factors such as age, discrimination, education, knowledge of job market, job occupation, social status, mobility, present residence, and sex seem to be on most lists. 11/

7/ Bieker, Richard F. and Joachim G. Elterich, "An Analysis of Factors Affecting the Work Force Status of Local Hired Farm Workers in Delaware and West Virginia," Journal of the Northeastern Agricultural Economics Council, Vol. III, No. 1, May, 1974.

8/ Luke, George W., Critical Issues in Extending Unemployment Insurance to Farm Workers in New Jersey, Bulletin AE 347, N.J. Agricultural Experiment Station, Rutgers University - The State University of New Jersey, New Brunswick, N. J., pp. 13-15.

9/ The 1973 Bureau of Census report stated ". . . in 1973 the median income of a black family of two adults and two children was 58 percent of the median income for the same size white family."

10/ Luke, George W., op.cit., Bauder, Ward D., "Puerto Rican Hired Agricultural Workers in the United States," Special Report to the Commission of the Senate of Puerto Rico, Unpublished report, March 24, 1971.

11/ Brandis, Royall and Steven R. Cox, Current Economic Problems; A Book of Readings, Richard D. Irwin, Inc., Homewood, Illinois, 1972, pp. 151-181.

Gallaway, Lowell E., Manpower Economics, Richard D. Irwin, Inc., Homewood, Illinois, 1971, pp. 1-14.

There is agreement that wage rates and total-weeks-employed are the main contributing factors not only to income but also to mobility for agricultural workers. 12/ Less agreement is found on the degree to which other social and economic factors account for income differences. In separate research studies to determine factors that contribute to labor mobility, Baumgartner, Gallaway, and Bieker tested a number of social and economic variables. 13/ They concurred that mobility is a function of both economic and non-economic factors and that it is influenced by age, income, and experience. Little agreement was apparent, however, on the effects of other socio-economic factors.

In an effort to explore the components of farm labor income by agricultural and nonagricultural jobs and also by various ethnic groups, income was hypothesized to be a function of 36 socio-economic variables (Appendix A, Table 15). These potential variables were screened under two criteria: first, through simple graphic analysis with each variable plotted against total income; and second, for a minimum number of observations. For the purposes of this investigation it was arbitrarily determined that any variable with less then 825 observations or with a complete random graphic relationship would be eliminated from further analysis. Twenty of the original 36 variables in both numeric and dummy variable form met the above criteria and were used in the investigation. 14/

Simple and multiple regression analysis was used to examine income relationships for agricultural workers, nonagricultural workers, and the total of both categories. The analysis was performed on all workers and for workers in different ethnic groups. All income variables that were found significant at the 95 percent level in a simple regression (one-on-one) were used in the multiple regression equations.

The variables that proved significant in explaining income at the 95 percent level in the multiple regression equations were then analyzed as

12/ -Yeh, Martin H., "The Labor Market with Particular Reference to Canadian Agriculture", Journal of Farm Economics, Vol. 49, No. 5, December 1967, pp. 1257-1267.

-Gallaway, Lowell E., "Mobility of Hired Agricultural Labor", Journal of Farm Economics, Vol. 49, No. 1, Part 1, February 1967, pp. 32-51.

-Gallaway, Lowell E., "Geographic Flows of Hired Agricultural Labor: 1957-1960", Journal of Agricultural Economics, Vol. 50, No. 2, May 1968, pp. 199-212.

13/ -Baumgartner, H.W., "Potential Mobility in Agriculture: Some Reasons for the Existence of a Labor-Transfer Problem", Journal of Farm Economics, Vol. 47, No. 1, February 1965, pp. 74-82.

-Gallaway, op.cit., Geographic Flows of Hired Agricultural Labor: 1957-1960.

-Bieker, op.cit.

14/ See Appendix A (Table 16) for a list of 20 variables used for initial regression equations.

far as their contribution (R^2) and their significance in various equations in explaining variation between ethnic groups by chi-square analysis.

Data Base

Data for this study had been collected to determine the effects of the extension of unemployment insurance to farm workers in New Jersey. 15/ The sampling technique consisted of a randomly chosen sample from a stratified subsample of farm employers in New Jersey. The data represented the 1969-1970 characteristics of a 1970 universe of farm workers in New Jersey.16/ Approximately 1,000 worker interviews were conducted from which 995 useful questionnaires were obtained. 17/ This study deals with 986 of these questionnaires of which 559 were from Puerto Ricans, 227 were from whites, and 200 were from blacks (9 were from other ethnic types of workers).

Results

The results are presented in three separate but related sections: total income equations, ethnic income equations, and analysis of the major income variables. A total income equation was developed for all farm workers and then subdivided by workers in agricultural employment and in nonagricultural employment. Second, income equations were developed for workers by agricultural and nonagricultural categories for the ethnic groups of Puerto Ricans, whites, and blacks. Finally, all 14 variables that proved significant in the income equations were analyzed for significant differences between ethnic groups.

The variables used in the multiple regression equations were those that proved to be significant at the 95-percent level of confidence (or greater) in explaining income by individual categories in simple regression analysis.

Total Income Equations

As would be expected, the number of weeks worked was a major factor in explaining total income. Of particular interest in different groups were the variation of income explained by weeks worked and the extent that other variables proved significant.

15/ Luke, op.cit.

16/ For a detailed description of the data collection and sampling methodology see Luke's study, pp. 227-232.

17/ For a copy of the questionnaire see Luke's study, pp. 243-259.

Agricultural Employment

The income equation for 837 laborers in agriculture explained 17.8 percent (R^2) of the total variation in agricultural income. Six variables (listed below) were significant at the 99-percent level. The variables that explained the largest variation were years worked for this employer (R^2 = 9.74), total weeks worked (R^2 = 2.41), and age (R^2 = 2.19), all of which were positively correlated with salary. Only one variable, have you ever received unemployment insurance, was inversely related to income.

$$IA = 486.2 + 73.7X_9 + 20.9X_{51} + 28.3X_3 + 188.40X_7 - 529.4X_{34} + 766X_1$$
$$(6.75) \quad (5.44) \quad (5.27) \quad (4.25) \quad (-3.35) \quad (2.79)$$

where: R^2 = 17.8

IA = income in agricultural jobs

X_9 = years worked for this employer

X_{51} = weeks worked in agriculture

X_3 = age of worker

X_7 = are you related to employer (dummy)

X_{34} = have you ever received unemployment insurance (dummy)

X_1 = sex (dummy)

( ) = t values for respective above variable

Nonagricultural Employment

The income equation for 837 laborers in nonagricultural employment explained 26.4 percent (R^2) of the total variation in nonagricultural income. Four variables were significant at the 99-percent level and one additional variable was significant at the 95-percent level. Three variables that explained the largest amount of variation were: weeks worked in nonagricultural jobs (R^2 = 11.1), age of worker (R^2 = 9.6), and years worked for this employer (R^2 = 3.4). The nonagricultural worker's age, and years worked for this employer were inversely related to salary, i.e., they were negative signs.

$$INA = 779.1 + 26.0X_{50} - 17.8X_3 - 31.5X_9 + 415.5X_{34} - 87.7_{X8}$$
$$(13.73) \quad (-4.45) \quad (-4.93) \quad (4.70) \quad (-2.06)$$

where: R^2 = 26.4

INA = income for nonagricultural jobs

X_{50} = weeks worked in nonagriculture

X_3 = age of worker

X_9 = years worked for this employer

X_{34} = have you ever received unemployment insurance (dummy)

X_8 = years you worked for wages

( ) = t values for respective above variables

Total Agricultural and Nonagricultural Employment

The total income equation explained 50.5 percent (R^2) of the total variation for the 829 workers who had both agricultural and nonagricultural employment. Six variables were significant at the 99-percent level, and one additional variable was significant at the 95-percent level. One variable, total weeks worked, was over-powering in explaining income. The number of dependent children was the only variable inversely related to income.

$$IT = -1182.9 + 85.0X_{52} + 66.5X_4 + 27.0X_9 + 677.7X_1 + 318.1X_{22} + 296.0X_{36}$$
$$(25.45) \quad (4.89) \quad (3.89) \quad (3.45) \quad (-3.28) \quad (2.73)$$

where: $R^2 = 50.5$

IT = income total (agricultural and nonagricultural)

X_{52} = weeks worked total

X_4 = level of education

X_9 = years worked for this employer

X_1 = sex (dummy)

X_{22} = number of dependent children

X_{36} = total organizations belong to

( ) = t values for respective above variables

Summary - Total Income Equations

Several points are noteworthy with regard to the income equations. First, excluding weeks worked, three factors consistently explained the

largest amount of variation in the agricultural and nonagricultural income equations. These were: age, number of years worked for this employer, and, to a lesser degree, whether the worker had ever received unemployment insurance.

Second, the contribution of these three variables was exactly reversed in the agricultural and nonagricultural equations. That is, being older, working longer for the present employer, and not receiving unemployment insurance were positive effects of income determination for agricultural workers, but negative effects for nonagricultural workers. Finally, at least partially because of the opposite effects in the agricultural and nonagricultural equations of the variables of age, length of employment, and whether workers had received unemployment insurance, no one factor was important in explaining total combined income.

Ethnic Income Equations

The number of weeks worked proved to be a significant variable in explaining income in both agricultural and nonagricultural equations. Only in the income equations for white agricultural and nonagricultural employment was it not found to be statistically significant.

Because of the repetitive nature of the analysis for each ethnic group, all equations will be detailed in Appendix B and only major findings will be presented in this section.

Puerto Ricans

Agricultural - Four variables were significant in explaining 29.1 percent (R^2) of the total income variation. Three of the variables were significant at a 99-percent level and one at a 95-percent level. Of the 489 worker observations, two variables -- weeks worked in agricultural jobs (R^2 = 14.6) and years worked for this employer (R^2 = 12.1) -- explained most of the variation. The variable, did you vote in any political elections in the last two years, was the only variable that was found to be inversely related to income.

Nonagricultural - Four variables with 485 observations each, all at a 99-percent level, proved significant in explaining 46.9 percent (R^2) of the nonagricultural income variation. Two of these variables explained most of the income variation: weeks worked (R^2 = 37.7) being the dominant variable; and years worked for this employer (R^2 = 6.19) being next. The other two variables -- years for wages, and years worked for this employer -- were inversely related to income.

Total Income - The total income equation explained 52.9 percent (R^2) of the total variation for the 559 workers with both agricultural and nonagricultural employment. Three variables were significant at the 99-percent level. However, one variable -- weeks worked (R^2 = 49.3) -- explained almost all the variation.

Whites

Agricultural - Three variables with 136 observations explained 18.5 percent (R^2) of the variation in agricultural income. Two of these variables, which were dummy variables -- sex (R^2 = 10.5), and registered to vote this year (R^2 = 5.5) -- explained most of the variation. Both were significant at the 99-percent level. The third variable, families that you visit regularly, was significant at the 95-percent level.

Nonagricultural - No variables were significant at the 95-percent level in explaining nonagricultural income.

Total Income - The total income equation explained 34.3 percent (R^2) of the variation for the 167 workers with agricultural and nonagricultural employment. Four variables were significant at a 99-percent level. Again, the dominant independent variable was weeks worked (R^2 = 18.0) with three other variables -- sex (R^2 = 5.8), have you voted in the past two years (R^2 = 5.28), and age (R^2 = 5.2) -- explaining approximately the same amount of variation. Age was inversely correlated with income.

Blacks

Agricultural - Three variables -- weeks worked in agriculture (R^2 = 10.6), are you registered to vote this year (R^2 = 8.3), and age (R^2 = 6.6) -- with 169 observations each, explained 25.6 percent (R^2) of the variation in agricultural income. No variable was overpowering in explaining the income variation. All independent variables were significant at a 99-percent level. Registered to vote was inversely related to income.

Nonagricultural - Four variables were significant at a 99-percent level in explaining 31.9 percent (R^2) of the variation in nonagricultural income. Two variables -- weeks worked in nonagricultural jobs (R^2 = 13.7), and age (R^2 = 11.8) -- with 169 observations, accounted for the largest part of the total explained income. Age was inversely correlated with income.

Total Income - Of the 200 observations in black income, only two variables were significant in explaining 68.6 percent (R^2) of the variation. Weeks worked was the dominant variable, explaining 67.9 percent (R^2) of the variation and was significant at a 99-percent level. Number of children that the workers had -- the second variable -- was significant at the 95-percent level.

Summary - Ethnic Income Equations

Since the three ethnic groups make up the workers for the total income equations, one would expect the same independent variables to be important in total income and ethnic income equations. The following summary will, therefore, concentrate on major differences between ethnic groups and their variations in agricultural and nonagricultural income.

With black and Puerto Rican agricultural and nonagricultural workers, weeks worked in the respective areas proved to be a major independent variable. In addition to weeks worked the same independent variables were also found significant in explaining total agricultural and nonagricultural incomes of Puerto Ricans and blacks. The variables, however, were positively related in one case and negative in the other; that is, they were polar variables -- opposite signs. Although these polar variables were important in explaining variations in agricultural and nonagricultural income, they were only minor or nonexistent in explaining total ethnic income. For example, for Puerto Ricans, years worked for this employer was a polar variable; for blacks, the polar variable was age. The signs with the polar variables for agricultural and nonagricultural jobs also seem consistent with a priori knowledge. For example, nonagricultural jobs are more easily obtained by younger farm workers than by older workers.

Different group classifications of variables seem to be useful in explaining variations by ethnic classes. For example, age and sex (personal group) were important in explaining agricultural and nonagricultural income differences for whites and blacks but not for Puerto Ricans. On the other hand, years for wages and years worked for this employer (experience group) were important agricultural and nonagricultural income determiners for Puerto Ricans but not for the other groups. Lastly, some variables, for example, weeks worked and questions on voting and unemployment insurance (information group), seem to involve all ethnic groups and most labor categories. 18/

Analysis of Major Variables

The 14 variables that proved significant in explaining income variations in one or more of the final regression equations will be examined in this section. In addition to the independent variables, the dependent variable salary will be examined in fulfillment of the first objective -- to examine the income differences between ethnic farm labor groups in New Jersey for both agricultural and nonagricultural incomes.

Salary:(1)

A division of salaries by ethnic groups for agricultural, nonagricultural, and total employment is presented in Table 1. Whites had the highest total salary followed by blacks and Puerto Ricans. The salary order, as expected, is the same as the order for total weeks worked, which is confirmed in Table 14.

The information in Table 1 also shows that the average agricultural income for whites is considerably higher than the agricultural income for Puerto Ricans or blacks, and yet the weeks worked by whites in agriculture is not significantly different from the other groups. On the other hand, weeks worked in nonagricultural jobs by Puerto Ricans and blacks was less in the first case and approximately equal in the second case to those worked

18/ Group classifications are obviously arbitrarily chosen and one could no doubt argue that some variables should be in one or another or several groups. This, in no way, seems to negate the general findings.

Table 1. Salaries of Farm Workers under Agricultural and Non-Agricultural Employment by Ethnic Groups - New Jersey Farm Labor Survey, 1969**

	Agricultural	Nonagricultural	Total
Total			
Observations	1,252*	278	1,530*
Percent	81.8	18.2	100.0
Average salary	$2,082.17	$1,998.05	$2,066.88
Puerto Ricans			
Observations	754	193	947
Percent	79.6	20.4	100.0
Average salary	$1,639.86	$1,942.01	$1,701.44
Whites			
Observations	249	24	273
Percent	91.2	8.8	100.0
Average salary	$3,577.27	$2,028.67	$3,441.12
Blacks			
Observations	236	61	297
Percent	79.5	20.5	100.0
Average salary	$1,889.22	$2,163.33	$1,945.52

*Sub-total observations by ethnic groups do not add to total due to "other workers" in total (includes covered and non-covered U.I. work).

**Source: Luke, George W. and John W. Carncross, data collected for NE-58 labor study for analysis of unemployment insurance in New Jersey. Calculated $X^2 = 403.27$ with 2 d.f. Significant at the 99 percent level.

by whites. Both blacks and Puerto Ricans earned more of their yearly income in nonagricultural than in agricultural work.

A chi-square analysis was conducted to determine if there was a significant difference in income between agricultural and nonagricultural jobs for ethnic groups. 19/ The analysis shows that there was a difference between agricultural and nonagricultural salaries in ethnic groups. Closer evaluation reveals that the salaries of Puerto Ricans and whites and of blacks and whites were significantly different from each other at the 99-percent level. There was no significant difference at the 95-percent level between Puerto Ricans and blacks.

19/ The chi-square analysis used in this section can be found in Modern Elementary Statistics, by John E. Freund, 3rd Edition, Prentice-Hall, Inc., Englewood Cliffs, N.J., 1967, pp. 292-295.

In summary -- there is a significant difference in the salaries of white farm workers as compared to those of Puerto Ricans and blacks. The difference is partially explained by the fact that whites worked a larger number of weeks. This study also shows that white farm workers, on the average, made more income per year from their agricultural than nonagricultural employment. The reverse pattern was true for Puerto Ricans and blacks.

Sex: (X_1)

The sex composition by ethnic groups is shown in Table 2. The pattern is that over 90 percent of New Jersey farm laborers are male and only among blacks are more than 10 percent female. Chi-square analysis shows that there is a significant difference by ethnic group as to the ratio of males to females. Not only is the total significant at the 99-percent level, but each ethnic group is significant from every other group at a 99-percent level.

Table 2. Sex Composition by Ethnic Groups - New Jersey Farm Labor Survey, 1969*

Categories	Total		Puerto Ricans		Whites		Blacks	
	No.	%	No.	%	No.	%	No.	%
Male	914	92.6	553	98.9	206	90.7	155	77.6
Female	72	7.4	6	1.1	21	9.3	45	22.4
Total	986	100.0	559	100.0	227	100.0	200	100.0

*Source: Luke, George W. and John W. Carncross, data collected for NE-58 labor study for analysis of unemployment insurance in New Jersey.

Calculated X^2_c = 101.56 with 2 d.f. Significant at the 99-percent level.

Age: (X_3)

Over 50 percent of all farm workers are 30 years of age or under, as shown in Table 3. In general, Puerto Ricans tend to be younger and whites tend to be older. A more detailed look at the data shows that over two percent of the workers are 15 years of age or less. There was a significant difference at the 99-percent level between ethnic groups and age categories. There was also a difference between ethnic groups for all combinations at the same level of significance.

Highest Educational Level Achieved: (X_4)

As one would expect after looking at the young age of most farm laborers, the average level of formal education achieved was fairly low. The data in

Table 3. Age Composition by Ethnic Groups - New Jersey Farm Labor Survey, 1969*

Years	Total		Puerto Ricans		Whites		Blacks	
	No.	%	No.	%	No.	%	No.	%
20 or under	249	25.3	149	26.7	57	25.0	43	21.5
21-30	264	26.7	189	33.8	36	15.9	39	19.5
31-40	161	16.3	96	17.2	28	12.3	37	18.5
41-50	154	15.6	69	12.3	39	17.2	46	23.0
51-60	109	11.1	47	8.4	36	15.9	26	13.0
Over 60	49	5.0	9	1.6	31	13.7	9	4.5
Total	986	100.0	559	100.0	227	100.0	200	100.0

*Source: Luke, George W. and John W. Carncross, data collected for NE-58 labor study for analysis of unemployment insurance in New Jersey.

Calculated $X^2 = 96.37$ with 10 d.f. Significant at the 99-percent level.

Table 4 show that over 55 percent of the workers had not gone through 8th grade and that only 11.8 percent had achieved a high school education. Large variation appeared between ethnic groups. For example, over 73 percent of the Puerto Rican workers had not completed the 8th grade, and only 3.4 percent had achieved a high school education. Of the whites, less than 25 percent had not completed the 8th grade and over 30 percent had a high school education. If the educational extremes of the three groups were examined from a more detailed breakdown, it would be seen that 5.7 percent of the total workers had no formal education and that 2.6 percent had completed some formal education beyond high school.

When checking variations for all ethnic groups and categories of formal education, it was found that there is a significant difference at the 99-percent level. Also, all combinations of ethnic groups were significantly different from each other at the same level.

Related to Present Employer: (X_7)

Very few farm workers were found to be related to their employers (Table 5). Only in the group of whites were more than 10 percent related to their employers. Using only the ethnic categories and related or not related there was a significant difference at the 99-percent level. The Puerto Ricans and whites and blacks were also found to be significantly different from each other at the 99-percent level.

Years Worked for Wages: (X_8)

With a fairly young labor force, one would expect that the majority of the workers would not have been employed for a very long period of years

Table 4. Highest Educational Grade Achieved by Ethnic Groups - New Jersey Farm Labor Survey, 1969*

Grade	Total		Puerto Ricans		Whites		Blacks	
	No.	%	No.	%	No.	%	No.	%
1 or less	85	8.6	66	11.8	4	1.8	15	7.5
2 or 3	103	10.5	76	13.6	9	4.0	18	9.0
4 or 5	177	18.0	140	25.0	13	5.8	24	12.0
6 or 7	183	18.5	131	23.4	29	12.8	23	11.5
8 or 9	187	19.0	92	16.5	58	25.6	37	18.5
10 or 11	134	13.6	35	6.3	42	18.6	57	28.5
12 or more	116	11.8	19	3.4	71	31.4	26	13.0
Total	985	100.0	559	100.0	226	100.0	200	100.0

*Source: Luke, George W. and John W. Carncross, data collected for NE-58 labor study for analysis of unemployment insurance in New Jersey.

Calculated $X^2 = 262.41$ with 12 d.f. Significant at the 99-percent level.

Table 5. Farm Workers Related to Present Employer by Ethnic Groups - New Jersey Farm Labor Survey, 1969*

Categories	Total		Puerto Ricans		Whites		Blacks	
	No.	%	No.	%	No.	%	No.	%
Related	26	2.6	2	.4	23	10.1	1	.5
Not related	955	96.9	555	99.2	202	89.0	198	99.0
No response	5	.5	2	.4	2	.9	1	.5
Total	986	100.0	559	100.0	227	100.0	200	100.0

*Source: Luke, George W. and John W. Carncross, data collected for NE-58 labor study for analysis of unemployment insurance in New Jersey.

Chi-square based on ethnic groups and related and not related only. Calculated $X^2 = 64.89$ with 2 d.f. Significant at the 99-percent level.

(Table 6). Over 36 percent of the workers had been employed for 5 years or less. Fewer than 45 percent have worked for more than 10 years. It was somewhat suprising to find that almost 5 percent of the labor force had been employed for over 40 years.

The chi-square test for significance between categories showed that the total table groups were significant at the 99-percent level. In an examination between ethnic groups only the Puerto Ricans and whites were significantly different above at the 95-percent level.

Table 6. Number of Years Farm Workers have Worked for Wages, by Ethnic Groups - New Jersey Farm Labor Survey, 1969*

Years	Total		Puerto Ricans		Whites		Blacks	
	No.	%	No.	%	No.	%	No.	%
0 - 5	358	36.3	203	36.3	84	37.1	71	35.5
6 - 10	187	19.0	121	21.7	28	12.4	38	19.0
11 - 15	125	12.7	72	12.9	26	11.5	27	13.5
16 - 20	98	10.0	59	10.6	16	7.1	23	11.5
21 - 25	41	4.2	21	3.8	11	4.9	9	4.5
26 - 30	54	5.5	22	3.9	21	9.3	11	5.5
31 - 35	33	3.3	19	3.4	8	3.5	6	3.0
36 - 40	41	4.2	26	4.7	11	4.9	4	2.0
40 plus	47	4.8	15	2.7	21	9.3	11	5.5
Total	984	100.0	558	100.0	226	100.0	200	100.0

*Source: Luke, George W. and John W. Carncross, data collected for NE-58 labor study for analysis of unemployment insurance in New Jersey.

Calculated $X^2 = 37.17$ with 16 d.f. Significant at the 99-percent level.

Years Worked for Present Employer: (X_9)

As expected, the majority of workers, 43.9 percent, worked 1 year or less for their present employer -- Puerto Ricans worked fewer years and whites worked more. There was a significant difference at the 99-percent level between the ethnic groups and years worked. There was also a difference between Puerto Ricans and whites and Puerto Ricans and blacks at the 99-percent level, but the difference between whites and blacks was not significant at the 95-percent level. (Table 7.)

Number of Dependent Children: (X_{17})

Few of the farm workers had dependent children, which, in view of the predominantly young age of the workers, was not suprising. Only 3.7 percent reported dependent children, and of this group, the average was 2.3 children per respondent. The largest percent of workers with dependent children (4.8%) were Puerto Rican. Blacks reported the largest number of dependent children per family (3.4). There was no difference between the number of dependent children and the ethnic categories or between any pairs of ethnic categories at the 95-percent level of significance. (Table 8.)

Table 7. Number of Years Farm Workers have Worked for Present Employer by Ethnic Groups - New Jersey Farm Labor Survey, 1969*

Years	Total		Puerto Ricans		Whites		Blacks	
	No.	%	No.	%	No.	%	No.	%
1 or less	420	43.9	294	53.8	60	27.8	66	33.8
2	166	17.3	97	17.7	30	13.8	39	20.0
3	75	7.8	38	7.0	20	9.2	17	8.7
4	55	5.7	30	5.5	15	6.9	10	5.1
5	46	4.8	21	3.9	13	6.0	12	6.2
6 - 10	82	8.6	40	7.3	22	10.1	20	10.3
11 - 15	54	5.6	19	3.5	22	10.1	13	6.7
Over 15	60	6.3	7	1.3	35	16.1	18	9.2
Total	958	100.0	546	100.0	217	100.0	195	100.0

*Source: Luke, George W. and John W. Carncross, data collected for NE-58 labor study for analysis of unemployment insurance in New Jersey.

Calculated $X^2 = 109.70$ with 14 d.f. Significant at the 99-percent level.

Opinion Question - Will Jobs be taken over by Machines: (X_{22})

Respondents were almost equally divided on the question of whether their jobs were likely to be taken over by machines (Table 9). There seems to be a strong difference of opinion by ethnic group, however, with whites feeling the machines would not take over and the blacks feeling that they would. The test for variation between responses and ethnic groups was significant at the 99-percent level. When examining ethnic group differences it was found that Puerto Ricans and blacks were significantly different at the 95-percent level and the other two groups were significant at the 99-percent level.

Voting Questions: (X_{32}, X_{33})

Data on the voting habits of the farm workers for the previous two years and whether they were presently registered to vote (1969-70), are presented in Table 10. Two facts seem evident concerning past and present voting habits. First, only about one-third of the workers vote or plan to vote. Second, in all cases, this voting trend is the same for all ethnic groups. Perhaps this trend is not too unexpected since more than 25 percent of the working force was under the legal voting age at that time.

For both questions in Table 10, the responses by ethnic group proved to be significantly different at a 99-percent level. When pairs of ethnic groups were examined for question A (vote in last two years) whites and blacks were not significantly different at a 95-percent level, and the other pairs were significantly different at the 99-percent level. In question B (registered to vote), none of the individual ethnic pairs proved significant at the 95-percent level.

Table 8. Farm Workers with Dependent Children by Ethnic Groups - New Jersey Farm Labor Survey, 1969*

	Dependent children		Total
	Yes	No	
Total			
Observations	36	950	986
Percent	3.7	96.3	100.0
Average	2.3		
Puerto Ricans			
Observations	27	532	559
Percent	4.8	95.2	100
Average	2.3		
Whites			
Observations	5	222	227
Percent	2.2	97.8	100.0
Average	2.4		
Blacks			
Observations	4	196	200
Percent	2.0	98.0	100.0
Average	3.4		

*Source: Luke, George W. and John W. Carncross, data collected for NE-58 labor study for analysis of unemployment insurance in New Jersey.

Calculated X^2 = 5.11 with 2 d.f. Not significant at the 95-percent level.

Table 9. Farm Workers' Ethnic Group Opinions if Jobs will Likely be Taken over by Machines - New Jersey Farm Labor Survey, 1969*

Response	Total		Puerto Ricans		Whites		Blacks	
	Obsns.	%	Obsns.	%	Obsns.	%	Obsns.	%
Yes	395	40.1	265	47.4	23	10.1	107	53.5
No	432	43.8	219	39.2	152	67.0	61	30.5
No response	159	16.1	75	13.4	52	22.9	32	16.0
Total	986	100.0	559	100.0	227	100.0	200	100.0

*Source: Luke, George W. and John W. Carncross, data collected for NE-58 labor study for analysis of unemployment insurance in New Jersey.

Obsns. = Observations

Calculated X^2 = 114.91 with 4 d.f. Significant at the 99-percent level.

Table 10. Farm Workers' Voting Habits by Ethnic Groups - New Jersey Farm Labor Survey, 1969*

Question	Total		Puerto Ricans		Whites		Blacks	
	Obsns.	%	Obsns.	%	Obsns.	%	Obsns.	%
A. Did you vote in the last 2 years?								
Yes	200	20.3	75	13.4	65	28.6	60	30.0
No	636	64.5	415	74.3	111	48.9	110	55.0
No response	150	15.2	69	12.3	51	22.5	30	15.0
Total	986	100.0	559	100.0	227	100.0	200	100.0
B. Are you registered to vote this year?								
Yes	360	36.5	212	37.9	79	34.8	69	34.5
No	472	47.9	276	49.4	96	42.3	100	50.0
No response	154	15.6	71	12.7	52	22.9	31	15.5
Total	986	100.0	559	100.0	227	100.0	200	100.0

*Source: Luke, George W. and John W. Carncross, data collected for NE-58 labor study for analysis of unemployment insurance in New Jersey.

Obsns. = Observations

Part A. Calculated X^2 = 60.58 with 4 d.f. Significant at the 99-percent level.
Part B. Calculated X^2 = 13.41 with 4 d.f. Significant at the 99-percent level.

Ever Received Unemployment Insurance: (X_{34})

Less than 25 percent of the farm workers had ever received unemployment insurance. More Puerto Ricans (28.4%) have received benefits than the other groups (Table 11). A test of variation between responses and ethnic classifications shows that they are significantly different at a 99-percent level. With pair variations, two sets were significant at a 95-percent level (Puerto Ricans and blacks and whites and blacks) and the other was significant at a 99-percent level.

Total Number of Organizations you Belong to: (X_{36})

In aggregate, farm laborers were found to belong to very few organizations with only 12.2 percent of the workers reporting membership in an organization (Table 12). Even for those workers who did belong to organizations,

Table 11. Farm Workers by Ethnic Groups who have Received Unemployment Insurance - New Jersey Farm Labor Survey, 1969*

Insurance	Total		Puerto Ricans		Whites		Blacks	
	Obsns.	%	Obsns.	%	Obsns.	%	Obsns.	%
Received	220	22.3	159	28.4	23	10.1	38	19.0
Not received	610	61.9	328	58.7	151	66.5	131	65.5
No response	156	15.8	72	12.9	53	23.4	31	15.5
Total	986	100.0	559	100.0	227	100.0	200	100.0

*Source: Luke, George W. and John W. Carncross, data collected for NE-58 labor study for analysis of unemployment insurance in New Jersey.

Obsns. = Observations

Calculated $X^2 = 38.83$ with 4 d.f. Significant at the 99-percent level.

three was the largest number for any worker. Blacks and whites had considerably more workers in organizations than did Puerto Ricans. The total responses and ethnic groups were significantly different at a 99-percent level. When examining variations between ethnic groups, whites and blacks were not significant at a 95-percent level and all other pairs were significant at a 99-percent level.

Families you Visit Regularly: (X_{37})

Farm workers appear to be a fairly gregarious group of people. Over 70 percent of the respondents stated that they visit one or more families fairly regularly. More suprising was the fact that some workers reported that they visited up to 50 families on a regular basis. Puerto Ricans visited, on the average, the most families (7.3), and whites the least (1.4). Overall, the respondent groups were found to be significantly different from the ethnic classifications at a 95-percent level; however, none of the ethnic pairs were found significant at the same level. (Table 13.)

Weeks Worked: (X_{50}, X_{51}, X_{52})

The number of weeks worked by those who reported agricultural and nonagricultural work is shown in Table 14. Total weeks worked is simply an average of the two groups. On the average, whites did work more weeks per year than the other ethnic groups. It is also noteworthy that whites worked more in nonagricultural jobs than the other groups. Puerto Ricans worked considerably more in agriculture than in nonagriculture.

Table 12. Number of Farm Workers who belong to Organizations by Ethnic Groups - New Jersey Farm Labor Survey, 1969*

	1 or more	None	No Response	Total
Total[1]				
Observations	120	719	147	986
Percent	12.2	72.9	14.9	100.0
Average	1.2			
Puerto Ricans[2]				
Observations	20	469	70	559
Percent	3.6	83.9	12.5	100.0
Average	1.1			
Whites[3]				
Observations	45	135	47	227
Percent	19.8	59.5	20.7	100.0
Average	1.4			
Blacks[4]				
Observations	55	115	30	200
Percent	27.5	57.5	15.0	100.0
Average	1.1			

1/ Maximum number of organization - 3
2/ Maximum number of organization - 2
3/ Maximum number of organization - 3
4/ Maximum number of organization - 3

*Source: Luke, George W. and John W. Carncross, data collected for NE-58 labor study for analysis of unemployment insurance in New Jersey.

Calculated X^2 = 112.10 with 4 d.f. Significant at the 99-percent level.

Chi-square analysis showed that the ethnic groups are significantly different by weeks worked in agricultural and weeks in nonagricultural categories at a 99-percent level. On the individual paired ethnic relationships, however, only Puerto Rican and whites were significantly different at a 95-percent level.

Summary - Analysis of Major Variables

The typical agricultural laborer in this study can be characterized as a young male with little education or experience who has a low total income and maintains jobs in both agricultural and nonagricultural areas. He is not related to his employer, does not vote, has not received unemployment insurance, does not belong to any organizations but does tend to associate with a large number of families on a fairly regular basis.

Table 13. Number of Farm Workers who Visit other Families Regularly by Ethnic Groups - New Jersey Farm Labor Survey, 1969*

	1 or more	None	No response	Total
Total[1]				
Observations	710	107	169	986
Percent	72.0	10.9	17.1	100.0
Average	6.7			
Puerto Ricans[2]				
Observations	425	55	79	559
Percent	76.1	9.8	14.1	100.0
Average	7.3			
Whites[3]				
Observations	143	24	60	227
Percent	63.0	10.6	26.4	100.0
Average	1.4			
Blacks[4]				
Observations	142	28	30	200
Percent	71.0	14.0	15.0	100.0
Average	5.3			

1/ Maximum number of families - 50
2/ Maximum number of families - 50
3/ Maximum number of families - 50
4/ Maximum number of families - 40

*Source: Luke, George W. and John W. Carncross, data collected for NE-58 labor study for analysis of unemployment insurance in New Jersey.

Calculated $X^2 = 21.13$ with 4 d.f. Significant at the 99-percent level.

Of the three ethnic groups in this study, the whites and Puerto Ricans seem to be at two polar extremes with the blacks somewhere in between. The whites, for example, work more weeks per year, have higher annual salaries and make more in agricultural jobs than the other groups. 20/ They are also older, better educated, more experienced, have worked longer for their present employer, and are more likely to be related to their employer than the other groups. They visit with fewer families than the other groups. They do not feel that their jobs will be replaced by machines.

At the other extreme, the Puerto Ricans work fewer weeks and make less money per year than the other groups. They are also the youngest, least

20/ The weeks per year and annual salaries for all ethnic groups refer to total of all employment and all salaries both in New Jersey and other locations.

Table 14. Weeks of Employment for Farm Workers under Agricultural and Nonagricultural Employment by Ethnic Groups - New Jersey Farm Labor Survey, 1969**

	Agricultural	Nonagricultural	Total
Total			
Observations	571*	956*	1,527*
Percent	37.4	62.6	100.0
Average weeks	27.5	24.7	25.8
Puerto Ricans			
Observations	398	550	948
Percent	42.0	58.0	100.0
Average weeks	29.1	18.4	22.9
Whites			
Observations	46	225	271
Percent	17.0	83.0	100.0
Average weeks	24.1	39.2	36.7
Blacks			
Observations	119	175	294
Percent	40.5	59.5	100.0
Average weeks	23.4	25.8	24.8

*Sub-total observations by ethnic groups do not add to totals due to "other workers" in total.

**Source: Luke, George W. and John W. Carncross, data collected for NE-58 labor study for analysis of unemployment insurance in New Jersey. Calculated $X^2 = 27.30$ with 2 d.f. Significant at the 99-percent level.

educated, and least experienced group. They tend to belong to fewer organizations than the other groups but visit with a larger number of families on a regular basis.

Somewhere between are the blacks, who share characteristics with both but have others of their own. For example, in education, experience, weeks worked, and salary they fall between the other groups. On the other hand, they share with the Puerto Ricans the characteristic that most of their salary is from nonagricultural work. The blacks have more dependent children than the other groups, have more females in the farm labor force, and feel that their jobs are being replaced by machines.

Study Limitations

As with all studies of this type, limitations can be linked with the sampling procedures, the data collection, and the assumptions used in analysis,

In the first place, any cross-section study suffers from the fact that it only applies to a single period of observation, and, therefore, loses the benefits of other periods. Second, since there was no universe of agricultural workers in New Jersey, the sampling procedure assumed that an unbiased worker sample could be drawn from the employer's sample. Third, this study took as given a large list of socio-economic worker characteristics which may or may not be the most significant variables that affect worker income.

For analysis, the assumptions of ordinary least square regression were used, as well as the assumption that the chi-square approximation method was reasonable for the normal chi-square analysis. Tests for autocorrelation and multicollinearity were not performed since all of the data were from a cross-section study and the purpose of the equations was only for prediction. Some of the calculations undoubtedly suffered from the fact that observations for some variables, especially in data cells for chi-square, were limited.

Summary

This study was initiated to examine the incomes of farm workers who work at least parttime in New Jersey. Specifically, it concentrated on the income in agricultural jobs, in nonagricultural jobs, and in total for the ethnic groups of Puerto Ricans, whites, and blacks. The analysis focused on two major objectives: first, to examine income differences between and within the above groups; and second, to pinpoint some of the factors that are important in predicting incomes of various groups. Using regression analysis the actual number of weeks worked proved to be the major variable in explaining income in all total income equations. The age of worker, the years worked for the present employer, and whether or not unemployment insurance was ever received were the next most important variables in explaining both agricultural and nonagricultural income. It was also significant that the first two variables were positively related to income in agricultural jobs and negatively related in nonagricultural jobs, and that of the third variable the reverse was true.

When examining incomes by ethnic groups three findings were significant. First, there was a statistical difference in the salaries between white farm laborers and those of blacks and Puerto Ricans. Second, whites make larger yearly salaries in agricultural jobs and blacks and Puerto Ricans make larger yearly salaries in nonagricultural jobs, which is not explained by the average number of weeks worked in those respective categories. Third, in terms of most of the significant variables that explained income, whites and Puerto Ricans seem to be at opposite extremes with blacks somewhere in between.

Conclusions

Consistent with the review of literature, this study shows that both economic and noneconomic variables can be useful in predicting income for farm workers. In all ethnic groups, noneconomic variables such as age

and several of the informational variables (voting habits and visitation) as well as economic variables (weeks worked, years worked for this employer, and whether workers had received unemployment insurance) were important in predicting income in various job categories. This conclusion also seems justified with the same variables for both numeric and nonnumeric (dummy) variables for prediction of farm workers' income in New Jersey.

A second conclusion is that the most important single factor in the prediction of farm income was the number of total weeks per year that the farm laborer worked. Although there were variations between agricultural and nonagricultural jobs and among the three ethnic groups, except for whites, total weeks per year of employment was the dominant variable in explaining yearly income.

A third conclusion is that the farm laborers in this study do not form a homogeneous labor force. There were major distinctions between those farm workers who do agricultural and nonagricultural work and between the different ethnic groups. The distinction is most apparent in weeks worked and income earned in agricultural and nonagricultural employment. It is also noticeable in variables such as age, education and opinions, and habits, especially among the ethnic groups.

A final conclusion is that white farm workers in this study have better incomes than blacks or Puerto Ricans. This was found to be directly related to the fact that whites work a total of more weeks per year. It is probably also related to the fact that they work more weeks per year in nonagricultural employment. Another probable reason for their higher total income is that, even though they work fewer weeks in agriculture than the other groups, their yearly agricultural incomes were higher. This obviously implies that their pay rate is higher and suggests that their job categories were different.

Recommendations

Based on the present study and the needs that this study and the review of literature suggest, the following recommendations are made:

(1) There is need for additional and continuous information on farm workers in New Jersey. This cross-section study would be greatly aided by a current data bank of time-series information. (Little is known, for example, about the day-haul labor force.)

(2) An in-depth analysis is needed for other possible noneconomic factors that may affect farm workers. This is especially needed for ethnic minority groups who do not share many of the middle-class values that are often imposed on them. This type of information is important if New Jersey plans to rely on an out-of-state seasonal farm-labor force.

(3) Since total annual income is obviously a major factor in obtaining seasonal farm workers, attempts should be made to supplement farm workers' salaries with off-seasonal farm employment. Perhaps a job-bank or other

system could be used to match jobs with qualifications, a program of O.J.T., or a work-study program.

(4) There is a need to know the cost of farm labor (total true cost) in relation to the productivity of farm laborers. In short, if seasonal farm laborers are to be used in New Jersey, it must "pay to do so."

(5) The time has come for all parties, from producer to consumer to realize that farm workers and seasonal farm workers in particular are needed if we are to maintain agriculture in New Jersey. Everyone must work together for the mutual benefit and concern of all or face the real possibility of losing most of the agricultural production from the State.

APPENDIX A

Table 15. Original Hypothesized Socio-Economic Variables

Variables	Form[1]	Observations
1. Sex	0-1	986
2. Age	numeric	986
3. Education	numeric	986
4. Married	0-1	890
5. Ownership	0-1	986
6. Related to employer	0-1	986
7. Years worked for wages	numeric	986
8. Years worked for this employer	numeric	986
9. Have you done non-farm work	0-1	526
10. Have you been a farm operator	0-1	652
11. Would you take year-round work	0-1	325
12. Did your father do farm work	0-1	831
13. Do relatives live nearby	0-1	829
14. Persons living together	numeric	848
15. Number of dependent children	numeric	986
16. Brothers eighteen years or older	numeric	584
17. Sisters eighteen years or older	numeric	564
18. Are jobs in agriculture decreasing	0-1	565
19. Is your job affected by improvements in agriculture	0-1	830
20. Is your job affected by machines in agriculture	0-1	833
21. Years you have worked in New Jersey	numeric	569
22. Would you stay in New Jersey if you had year-round job	0-1	565
23. Who decides where you work	0-1	543
24. Who supervises you on job	0-1	651
25. Do you make your own work decisions	0-1	650
26. How often do you read a newspaper	0-1	490
27. How often do you listen to radio	0-1	645
28. How often do you watch news on T.V.	0-1	621
29. Did you vote in 1968	0-1	842
30. Did you vote in last 2 years	0-1	843
31. Are you registered to vote this year	0-1	839
32. Ever receive unemployment insurance	0-1	837
33. Would your job be more attractive with U.I.	0-1	764
34. Total number of organizations you belong to	numeric	847
35. Families you visit regularly	numeric	825
36. Work weeks covered (agr., non-agr., total)	numeric	986

1/ Dummy variables = 0-1.

System Variables

Table 16. List of Variables used in Regression Equation

Variables		Form[1]	Observations
1. Sex	(X_1)	0-1	986
2. Age	(X_3)	numeric	986
3. Education	(X_4)	numeric	986
4. Ownership	(X_6)	0-1	986
5. Related to employer	(X_7)	0-1	986
6. Years worked for wages	(X_8)	numeric	986
7. Years worked for this employer	(X_9)	numeric	986
8. Did your father do farm work	(X_{14})	0-1	831
9. Do relatives live nearby	(X_{15})	0-1	829
10. Persons living together	(X_{16})	numeric	848
11. Number of dependent children	(X_{17})	numeric	986
12. Is your job affected by improvements in agriculture	(X_{21})	0-1	830
13. Is your job affected by machines in agriculture	(X_{22})	0-1	833
14. Did you vote in 1968	(X_{31})	0-1	842
15. Did you vote in the last 2 years	(X_{30})	0-1	843
16. Are you registered to vote this year	(X_{33})	0-1	839
17. Ever receive unemployment insurance	(X_{34})	0-1	837
18. Total number of organizations you belong to	(X_{36})	numeric	847
19. Families you visit regularly	(X_{37})	numeric	825
20. Work weeks covered (agr., nonagr., total)	($X_{50,51,52}$)	numeric	986

1/ Dummy variables 0-1.

APPENDIX B

Income Equation for Ethnic Groups

Income Equation for Puerto Ricans

Agriculture:

$$IA = 972.6 + 35.7X_{51} + 166.5X_{9} + 342.0X_{17} - 535.2X_{32}$$
$$\qquad\qquad (9.27) \quad (7.75) \quad (3.06) \quad (-2.84)$$

where: $R^2 = 29.1$

IA = income in agricultural jobs

X_{51} = weeks worked in agricultural jobs

X_{9} = years worked for this employer

X_{17} = number of dependent children

X_{32} = did you vote in last two years (dummy)

( ) = t values for respective above variables

Nonagriculture:

$$INA = 235.4 + 43.1X_{50} - 74.9X_{9} + 401.3X_{34} - 16.4X_{8}$$
$$\qquad\qquad (17.89) \quad (-5.27) \quad (4.22) \quad (-4.10)$$

where: $R^2 = 46.9$

INA = income in nonagricultural jobs

X_{50} = weeks worked in nonagricultural jobs

X_{9} = years worked for this employer

X_{34} = did you ever receive unemployment insurance (dummy)

X_{8} = years you have worked for wages

( ) = t value for respective above variables

Total - Agricultural and Nonagricultural Employment:

$$IT = -84.7 + 70.0X_{52} + 84.0X_{9} + 266.8X_{17}$$
$$(23.03) \quad (5.55) \quad (3.14)$$

where: $R^2 = 52.9$

IT = income total (agricultural and nonagricultural)

X_{52} = weeks worked - total

X_{9} = years worked for this employer

X_{17} = number of dependent children

( ) = t values for respective above variables

Income Equations for Whites

Agriculture:

$$IA = 1433.8 + 2718.4X_{1} + 930.6X_{33} + 62.9X_{37}$$
$$(4.62) \quad (2.77) \quad (2.23)$$

where: $R^2 = 18.5$

IA = income in agricultural jobs

X_{1} = sex (dummy)

X_{33} = are you registered to vote this year (dummy)

X_{37} = families that you visit regularly

( ) = t values on respective above variables

Nonagriculture:

No variables significant in explaining income at the 95-percent level of significance.

Total - Agricultural and Nonagricultural Employment:

$$IT = -882.5 + 104X_{52} + 1232X_{32} + 1818X_1 - 32.8X_3$$
$$(6.61) \quad (4.34) \quad (3.71) \quad (-3.58)$$

where: $R^2 = 34.3$

IT = income total (agricultural and nonagricultural)

X_{52} = weeks worked - total

X_{32} = did you vote in the last two years (dummy)

X_1 = sex (dummy)

X_3 = age

( ) = t values for respective above variables

Income Equations for Blacks

Agriculture:

$$IA = 196.6 + 43.0X_{51} + 56.0X_3 - 1314.5X_{33}$$
$$(5.32) \quad (4.93) \quad (-4.29)$$

where: $R^2 = 25.6$

IT = income in agricultural jobs

X_{51} = weeks worked in agricultural jobs

X_3 = age

X_{33} = are you registered to vote this year

( ) = t values for respective above variables

Nonagriculture:

$$INA = 984.8 + 23.3X_{50} - 38.6X_3 + 544.6X_{36} + 623.5X_1$$
$$(5.44) \quad (-5.46) \quad (3.11) \quad (2.69)$$

where: $R^2 = 31.9$

INA = income in nonagricultural jobs

X_{50} = weeks worked in nonagricultural jobs

X_3 = age

X_{36} = total organizations you belong to

X_1 = sex (dummy)

( ) = t values for respective above variables

Total Agricultural and Nonagricultural Employment:

$$IT = -422.9 + 90.1X_{52} + 540.7X_{17}$$
$$(20.40) \quad (2.12)$$

where: R^2 = 68.6

IT = income total (agricultural and nonagricultural)

X_{52} = weeks worked - total

X_{17} = number of dependent children

( ) = t values for respective above variables

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